

1 APPLICATION FOR UNITED STATES LETTERS PATENT

2 ON INVENTION FOR:

3 MULTI-TERMINAL ELECTRICAL SAFETY SWITCH FOR SIMULTANEOUSLY
4 CLOSING AND OPENING ELECTRICAL CIRCUITS CONNECTED THERETO

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8 Agt. Doc. No.: TUNR14F

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16 TO ALL WHOM IT MAY CONCERN:

17 BE IT KNOWN that I, Robert M. Tuniewicz, a citizen
18 of THE UNITED STATES OF AMERICA and resident of: Mt. Sinai,
19 NY 11766 and Gilbert D. Talamo, a citizen of THE UNITED
20 STATES OF AMERICA and resident of: Great River, NY 11739
21 have invented certain new and useful improvements in a(n):
22 MULTI-TERMINAL ELECTRICAL SAFETY SWITCH FOR SIMULTANEOUSLY
23 CLOSING AND OPENING ELECTRICAL CIRCUITS CONNECTED THERETO of
24 which the following is a full, clear, concise and exact
25 description:
26

1 Inventors: Robert M. Tuniewicz and Gilbert D. Talamo
2 Invention: MULTI-TERMINAL ELECTRICAL SAFETY SWITCH FOR SIMULTANEOUSLY
3 CLOSING AND OPENING ELECTRICAL CIRCUITS CONNECTED THERETO
4 DOC. No.: TUNR14F

5 CROSS REFERENCE TO RELATED APPLICATIONS

6 The instant application is a nonprovisional application of U.S.
7 provisional application number 60/414,467 filed on Sept. 30, 2002, and
8 entitled INTEGRATED TERMINAL BLOCK AND DISCONNECT SWITCH WITH REMOVABLE
9 PULLOUT SWITCH HANDLE, and it is respectfully requested that this
10 application be accorded the benefit under 35 USC 119(e) of said U.S.
11 provisional application.

12 BACKGROUND OF THE INVENTION

13 Field of the Invention:

14 The present invention relates to an electrical switch for
15 simultaneously closing or simultaneously opening electrical circuits
16 connected thereto. More particularly, the present invention relates to
17 a multi-terminal electrical safety switch for simultaneously closing or
18 simultaneously opening electrical circuits connected thereto.

19 Description of the Prior Art:

20 Numerous innovations for electrical switches have been provided in
21 the prior art. Even though these innovations may be suitable for the
22 specific individual purposes to which they address, however, they would
23 not be suitable for the purposes of the present invention as heretofore
24 described.

SUMMARY OF THE INVENTION

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2 ACCORDINGLY, AN OBJECT of the present invention is to provide a
3 multi-terminal electrical safety switch for simultaneously closing or
4 simultaneously opening electrical circuits connected thereto that avoids
5 the disadvantages of the prior art.

6 ANOTHER OBJECT of the present invention is to provide a multi-
7 terminal electrical safety switch for simultaneously closing or
8 simultaneously opening electrical circuits connected thereto that is
9 simple to use.

10 BRIEFLY STATED, STILL ANOTHER OBJECT of the present invention is to
11 provide a multi-terminal electrical safety switch that simultaneously
12 closes or simultaneously opens electrical circuits connected thereto. The
13 switch includes a terminal block and a current path completer/breaker.
14 The terminal block has the electrical circuits connected thereto and the
15 current path completer/breaker is replaceably engaged with the terminal
16 block. The current path completer/breaker simultaneously completes
17 current paths through the terminal block when engaged with the terminal
18 block and thereby simultaneously closes the electrical circuits connected
19 to the terminal block. The current path completer/breaker simultaneously
20 breaks the current paths through the terminal block when removed from the
21 terminal block and thereby simultaneously opens the electrical circuits
22 connected to the terminal block so as to allow the electrical circuits
23 connected to the terminal block to be safely worked on without any
24 inadvertent closing of any of the electrical circuits by virtue of the
25 current path completer/breaker being physically removed from the terminal
26 block.

27 The novel features which are considered characteristic of the
28 present invention are set forth in the appended claims. The invention
29 itself, however, both as to its construction and its method of operation,
30 together with additional objects and advantages thereof, will be best

- 1 understood from the following description of the specific embodiments when
- 2 read and understood in connection with the accompanying drawing.

BRIEF DESCRIPTION OF THE DRAWING

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2 The figures of the drawing are briefly described as follows:

3 FIGURE 1 is an exploded diagrammatic perspective view of the present
4 invention;

5 FIGURE 2 is a schematic of the present invention; and

6 FIGURE 3 is an enlarged diagrammatic top plan view taken along line 3-3
7 in FIGURE 1.

LIST OF REFERENCE NUMERALS UTILIZED IN THE DRAWING

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- | | | |
|----|----|---|
| 2 | 10 | multi-terminal electrical safety switch of present invention for |
| 3 | | simultaneously closing or simultaneously opening electrical |
| 4 | | circuits 12 connected thereto |
| 5 | 12 | electrical circuits |
| 6 | 14 | terminal block |
| 7 | 16 | current path completer/breaker |
| 8 | 18 | current paths |
| 9 | 20 | insulative block |
| 10 | 22 | top surface of terminal block 14 |
| 11 | 24 | pair of side edges of terminal block 14 |
| 12 | 26 | longitudinal center line of terminal block 14 |
| 13 | 28 | at least one pair of terminals of terminal block 14 |
| 14 | 30 | at least one socket of terminal block 14 |
| 15 | 32 | pair of strips of each socket of at least one socket 30 of |
| 16 | | terminal block 14 |
| 17 | 34 | flat portion of each strip of pair of strips 32 of at least one |
| 18 | | socket 30 of terminal block 14 |
| 19 | 36 | substantially U-shaped portion of each strip of pair of strips 32 |
| 20 | | of at least one socket 30 of terminal block 14 |
| 21 | 38 | primary partition of terminal block 14 |
| 22 | 40 | at least one secondary partition of terminal block 14 |
| 23 | 42 | top surface of insulative block 20 |
| 24 | 43 | bottom surface of insulative block 20 |
| 25 | 44 | first recess in insulative block 20 |
| 26 | 46 | floor defining first recess 44 in insulative block 20 |
| 27 | 48 | second recess in insulative block 20 |
| 28 | 50 | ceiling defining second recess 48 in insulative block 20 |
| 29 | 52 | partition in insulative block 20 |
| 30 | 54 | at least one pair of through slots in partition 52 in insulative |
| 31 | | block 20 |

1	56	pair of side walls further defining second recess 48 in
2		insulative block 20
3	58	pair of through slots in pair of side walls 56 of insulative
4		block 20
5	60	top surface of current path completer/breaker 16
6	62	bottom surface of current path completer/breaker 16
7	64	handle of current path completer/breaker 16
8	66	at least one fork of current path completer/breaker 16

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

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2 Referring now to the figures, in which like numerals indicate like
3 parts, and particularly to FIGURES 1 and 2, the multi-terminal electrical
4 safety switch of the present invention is shown generally at 10 for
5 simultaneously closing or simultaneously opening electrical circuits 12
6 connected thereto.

7 The multi-terminal electrical safety switch 10 comprises a terminal
8 block 14 and a current path completer/breaker 16.

9 The terminal block 14 has the electrical circuits 12 connected
10 thereto and the current path completer/breaker 16 is replaceably engaged
11 with the terminal block 14.

12 The current path completer/breaker 16 simultaneously completes
13 current paths 18 through the terminal block 14 when engaged with the
14 terminal block 14 and thereby simultaneously closes the electrical
15 circuits 12 connected to the terminal block 14.

16 The current path completer/breaker 16 simultaneously breaks the
17 current paths 18 through the terminal block 14 when removed from the
18 terminal block 14 and thereby simultaneously opens the electrical circuits
19 12 connected to the terminal block 14 so as to allow the electrical
20 circuits 12 connected to the terminal block 14 to be safely worked on
21 without any inadvertent closing of any of the electrical circuits 12 by
22 virtue of the current path completer/breaker 16 being physically removed
23 from the terminal block 14.

24 The multi-terminal electrical safety switch 10 further comprises an
25 insulative block 20. The insulative block 20 replaceably attaches to the
26 terminal block 14 and is replaceably engaged by the current path
27 completer/breaker 16.

28 The specific configuration of the terminal block 14 and the
29 insulative block 20 can best be seen in FIGURES 1 and 3, and as such, will
30 be discussed with reference thereto.

1 The terminal block 14 is generally rectangular-parallelepiped-
2 shaped, and has a top surface 22, a pair of side edges 24, and a
3 longitudinal center line 26.

4 The terminal block 14 further has at least one pair of terminals 28.
5 Each pair of terminals of the at least one pair of terminals 28 of the
6 terminal block 14 are transversely aligned with each other and are
7 associated with a current path of the current paths 18.

8 The at least pair of terminals 28 of the terminal block 14 is
9 disposed on the top surface 22 of the terminal block 14, at the pair of
10 side edges 24 of the terminal block 14, respectively.

11 The terminal block 14 further has at least one socket 30. The at
12 least one socket 30 of the terminal block 14 electrically communicates an
13 associated pair of terminals of the at least one pair of transversely
14 aligned terminals 28 of the terminal block 14 with each other when the
15 current path completer/breaker 16 is engaged with the terminal block 14
16 thereby completing a current path of the current paths 18 associated
17 therewith. The at least one socket 30 of the terminal block 14 is
18 disposed on the top surface 22 of the terminal block 14.

19 Each socket of the at least one socket 30 of the terminal block 14
20 comprises a pair of strips 32. The pair of strips of each socket of the
21 at least one socket 30 of the terminal block 14 are transversely aligned
22 with each other. Each strip of the pair of strips 32 of the at least one
23 socket 30 of the terminal block 14 is electrically conductive, bendable,
24 and resilient.

25 Each strip of the pair of strips 32 of the at least one socket 30
26 of the terminal block 14 has a flat portion 34 and a substantially U-
27 shaped portion 36. The substantially U-shaped portion 36 of each strip
28 of the pair of strips 32 of the at least one socket 30 of the terminal
29 block 14 extends from the flat portion 34 of an associated strip of the
30 pair of strips 32 of the at least one socket 30 of the terminal block 14.

31 The flat portion 34 of each strip of the pair of strips 32 of the
32 at least one socket 30 of the terminal block 14 is electrically

1 communicatingly attached to an associated terminal of the at least one
2 pair of terminals 28 of the terminal block 14, and the substantially U-
3 shaped portion 36 of each strip of the pair of strips 32 of the at least
4 one socket 30 of the terminal block 14 depends into the terminal block 14.

5 The terminal block 14 further has a primary partition 38. The
6 primary partition 38 of the terminal block 14 separates the pair of strips
7 32 of each socket of the at least one socket 30 of the terminal block 14
8 from each other. The primary partition 38 of the terminal block 14
9 extends along the longitudinal centerline 26 of the terminal block 14.

10 The terminal block 14 further has at least one secondary partition
11 40 when the at least one pair of terminals 28 of the terminal block 14 is
12 more than one pair. Each secondary partition of the at least one
13 secondary partition 40 of the terminal block 14 separates adjacent
14 terminals of the at least one pair of terminals 28 of the terminal block
15 14 from each other.

16 Each secondary partition of the at least one secondary partition 40
17 of the terminal block 14 intersects the primary partition 38 of the
18 terminal block 14, and extends from one side edge of the pair of side
19 edges 24 of the terminal block 14 to the other side edge of the pair of
20 side edges 24 of the terminal block 14.

21 The insulative block 20 is substantially rectangular-parallelepiped-
22 shaped, and has a top surface 42 and a bottom surface 43.

23 The insulative block 20 insulatively protects the at least one
24 socket 30 of the terminal block 14 when attached to the terminal block 14
25 and insulatively protects the current path completer/breaker 16 when
26 engaged with the terminal block 14.

27 The insulative block 20 further has a first recess 44. The first
28 recess 44 in the insulative block 20 is defined by a floor 46, replaceably
29 receives the current path completer/breaker 16, and depends in the top
30 surface 42 of the insulative block 20.

31 The insulative block 20 further has a second recess 48. The second
32 recess 48 in the insulative block 20 is defined by a ceiling 50,

1 replaceably receives the primary partition 38 of the terminal block 14,
2 and extends in the bottom surface 43 of the insulative block 20.

3 The floor 46 of the first recess 44 in the insulative block 20 and
4 the ceiling 50 of the second recess 48 in the insulative block 20 form a
5 partition 52 in the insulative block 20. The partition 52 in the
6 insulative block 20 has at least one pair of through slots 54. Each pair
7 of through slots of the at least one pair of through slots 54 in the
8 partition 52 in the insulative block 20 are transversely aligned with each
9 other and aligned with an associated socket of the at least one socket 30
10 of the terminal block 14.

11 The second recess 48 in the insulative block 20 is further defined
12 by a pair of side walls 56. The pair of side walls 56 of the second
13 recess 48 in the insulative block 20 has at least one pair of through
14 slots 58 when the at least one secondary partition 40 of the terminal
15 block 14 is present. Each pair of through slots 58 in the pair of side
16 walls 56 of the second recess 48 in the insulative block 20 are
17 transversely aligned with each other. The at least one pair of through
18 slots 58 in the pair of side walls 56 of the second recess 48 in the
19 insulative block 20 receive an associated secondary partition of the at
20 least one secondary partition 40 of the terminal block 14.

21 The specific configuration of the current path completer/breaker 16
22 can best be seen in FIGURE 1, and as such, will be discussed with
23 reference thereto.

24 The current path completer/breaker 16 is generally rectangular-
25 parallelepiped-shaped, and has a top surface 60 and a bottom surface 62.

26 The current path completer/breaker 16 further has a handle 64. The
27 handle 64 of the current path completer/breaker 16 extends upwardly from
28 the top surface 60 of the current path completer/breaker 16, and is
29 generally T-shaped to facilitate gripping of the current path
30 completer/breaker 16 when the current path completer/breaker 16 is being
31 disengaged from the insulative block 20 and the terminal block 14.

1 The current path completer/breaker 16 further has at least one fork
2 66. Each fork of the at least one fork 66 of the current path
3 completer/breaker 16 is two pronged, is electrically conductive, depends
4 from the bottom surface 62 of the current path completer/breaker 16, and
5 is substantially inverted U-shaped.

6 Each fork of the at least one fork 66 of the current path
7 completer/breaker 16 passes through an associated pair of through slots
8 of the at least one pair of through slots 54 in the partition 46 in the
9 insulative block 20 and engagingly into an associated socket of the at
10 least one socket 30 of the terminal block 14 when the current path
11 completer/breaker 16 is engaged in the insulative block 20, and in so
12 doing, simultaneously completes the current paths 18 through the terminal
13 block 14 and thereby simultaneously closes the electrical circuits 12
14 connected to the terminal block 14. Conversely when each fork of the at
15 least one fork 66 of the current path completer/breaker 16 is disengaged
16 from the associated socket of the at least one socket 30 of the terminal
17 block 14 and removed from the associated pair of through slots of the at
18 least one pair of through slots 54 in the partition 46 in the insulative
19 block 20 by the current path completer/breaker 16 being disengaged from
20 the insulative block 20 the current paths 18 through the terminal block
21 14 are simultaneously broken and thereby the electrical circuits 12
22 connected to the terminal block 14 are simultaneously opened.

23 It will be understood that each of the elements described above, or
24 two or more together, may also find a useful application in other types
25 of constructions differing from the types described above.

26 While the invention has been illustrated and described as embodied
27 in a multi-terminal electrical safety switch for simultaneously closing
28 or simultaneously opening electrical circuits connected thereto, however,
29 it is not limited to the details shown, since it will be understood that
30 various omissions, modifications, substitutions and changes in the forms
31 and details of the device illustrated and its operation can be made by

1 those skilled in the art without departing in any way from the spirit of
2 the present invention.

3 Without further analysis, the foregoing will so fully reveal the
4 gist of the present invention that others can, by applying current
5 knowledge, readily adapt it for various applications without omitting
6 features that, from the standpoint of prior art, fairly constitute
7 characteristics of the generic or specific aspects of this invention.